Original Article

Phenotypic Presentation of Oculopharyngeal Muscular Dystrophy

Oculopharyngeal Muscular Dystrophy

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ABSTRACT

Objective: The purpose of this paper is to present OPMD in Pakistan.
Study Design: Analytic study
Place and Duration of Study: This study was conducted at the Qamber Shahdadkot, recruited through Neurology department CMCH SMBBU Larkana from July 2019 to June 2020 for a period of one and a half year.
Materials and Methods: In a patient manifesting signs of OPMD, we arranged a camp to screen family members and close relatives for characteristic findings of OPMD. The analysis become made on scientific grounds. Demographic characteristics and clinical features were noted in structured proforma. Data analysis was done using SPSS.
Results: A total of 40 patients were diagnosed with OPMD. The mean age of patients was 27.75±14.27. The demographic presentation is shown in table-1. The mean age of patients when they had first symptoms was 18.85±10.12. 24 (60%) were male and 16 (40%) were female patients. First symptom was ptosis in 29 (72.5%) and dysphagia in 11 (27.5%) patients. Ptosis as the first symptom was seen in 18(62.1%) males and 11(37.9%) females. Dysphagia was the first symptom in 6(54.5%) males and 5(45.5%) female patients with p=.728. Ptosis was the most common symptoms present in 39(97.5%) patients. Ptosis was seen in all female patients included in our study while it was absent in only 1 male patient at the time of presentation with p=1.000. Dysphagia was the second most common symptom found in 32(80%) followed by proximal weakness found in 22(55%) and ophthalmoplegia found in 19(47.5%). Dysphagia was present in 21(65.6%) males and 11(34.4%) female patients with p=.229. Ophthalmoplegia was seen in 11(57.9%) males and 8(42.1%) females with p=0.769. Proximal myopathy was seen in 13(59.1%) males and 9(40.9%) female patients with p=.897. All patients had a positive family history of OPMD.
Conclusion: OPMD in our population has an earlier onset, which may be as early as the first few years of life. The disease is more severe. Common in the male population and about half of the patients present with proximal limb weakness and ophthalmoplegia besides ptosis and dysphagia.
Key Words: Phenotypic, Oculopharyngeal, Muscular, Dystrophy

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INTRODUCTION

The muscular dystrophies are an inherited group of progressive myopathic problems attributable to defects in many genes needed for normal muscle functions. Oculopharyngeal muscular dystrophy (OPMD) is a rare myopathy that is characterized by involving of ocular and pharyngeal muscle, lead to ptosis and dysphagia.[1, 2]

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First described in 1915 by Taylor, when a progressive cranial neuropathy was attributed to it.[3] Inheritance in an autosomal dominant manner and primary as myopathy was demonstrated by Victor in 1962.[1]The muscle histology reveals abnormal variability in fiber size., an increment in endomysial fibrosis, and cytoplasmic basophilic rimmed vacuoles like those found in incorporation body myositis.[4] Commonly OPMD present with ptosis, dysarthria, and dysphagia. It can likewise be related with proximal and distal limit weakness. Usually onset occurs in middle age. The diagnosis was at first based on clinical features, muscle histology, and positive family history.

Repeat expansion of trinucleotide (stable) at the N-terminus of a poly(A) binding protein gene (PABP2) chromosome 14 was notified by Brais and partners.[5] Autosomal recessive inheritance has been reported with alleles that have 11 repeats,[5-7] as has at least one case of probable autosomal dominant inheritance.[8]

Even though OPMD has globally distribution, highest prevalence seemed in French-Canadian Kindred. So in this scenario, we highlighted the clinical aspects of OPMD from Pakistan.

MATERIALS AND METHODS

Subjects were from a village of district Qamber Shahdadkot, recruited through Neurology department CMCH SMBBU Larkana. Study was carried out during the period of July 2019 to June 2020. We arranged a camp in the village of an indexed patient and family members were screened for presence and absence of abnormalities related to occulopharyngeal muscular dystrophy. A total of 16 to 20 families were screened related to the index patient. Details of the patients were noted confidentially. Ethical approval was obtained from the ethical review committee of the CMCH SMBBMU Larkana.

The diagnosis was made on clinical grounds. Demographic characteristics and clinical features were noted in structured proforma. Data analysis was done using SPSS 16 version.

RESULTS

A total of 40 patients were diagnosed with OPMD. The mean age of patients was 27.75±14.27. The demographic presentation is shown in table-1. The mean age of patients when they had first symptoms was 18.85±10.12. 24 (60%) were male and 16 (40%) were female patients. First symptom was ptosis in 29 (72.5%) and dysphagia in 11 (27.5%) patients. Ptosis as the first symptom was seen in 18(62.1%) males and 11(37.9%) females. Dysphagia was the first symptom in 6(54.5%) males and 5(45.5%) female patients with p=.728. Ptosis was the most common symptoms present in 39(97.5%) patients.

Table No.1: Demographic presentation of OPMD

Characteristics		MEAN ± SD
Age (Mean ± SD)		27.75±14.27
Age of First symptom		18.85±10.12
Characteristics		Number (percentages)
Gender	Male	24(60%)
	Female	16(40%)
First Symptom		
	Ptosis	29(72.5%)
	Dysphagia	11(27.5%)
Symptoms	Ptosis	39(97.5%)
	Dysphagia	32(80%)
Ophthalmoplegia	Proximal weakness	22(55%)
	Family History	40(100%)

Ptosis was seen in all female patients included in our study while it was absent in only 1 male patient at the time of presentation with p=1.000. Dysphagia was second most common symptom found in 32(80%) followed by proximal weakness found in 22(55%) and ophthalmoplegia found in 19(47.5%). Dysphagia was present in 21(65.6%) males and 11(34.4%) female patients with p=.229. Ophthalmoplegia was seen in 11(57.9%) males and 8(42.1%) females with p=0.769. Proximal myopathy was seen in 13(59.1%) males and 9(40.9%) female patients with p=.897. All patients had positive family history of OPMD.

DISCUSSION

We identified 40 cases of OPMD belonging to different families from district Qamber Shahdadkot. All families were interlinked to each other with inter-marriages within families. Until recently, the OPMD diagnosis was made on common clinical findings, positive family history, and demonstration of characteristic inclusions in muscle biopsy. However, diagnosis can be confirmed by molecular genetic analysis. Since its first report in 1915 it has been reported in many countries and there are as many as 300 published papers on OPMD. Until the 1980s OPMD was more considered a disorder of racially white western people. However, there are reported cases from Japan, Israel, and Siberia.[9-11] Very few papers have been reported from Asia including China, India, and Taiwan, probably due to underdiagnosis. The majority of patients in our study have an earlier onset of symptoms, before the age of 45 years, pointing to dominant OPMD with severe disease in individuals' homozygote for OPMD.[12-14] Yu-Yi Chien in his paper on OPMD reported 3 cases of OPMD in a Chinese immigrant family where 1 patient was a 67-year-old male, the second patient was a 46-year-old female, although she had prolonged symptoms she was diagnosed after her father was diagnosed with OPMD and the third patient was a 38-year-old female.[15]Blumen SC et al. in their paper on OPMD reported all 5 patients with late-onset disease.[16] Mirabella M et al. in their study in the Italian population reported onset as early as 30 years of age.[17] In our study mean age of the first symptom was 18.85±10.12. Age at the time of the first symptom in our study was seen as early as 2 years of life. A similar pattern of illness was seen by Fukuhara N et al. They found 2 cases of OPMD; case 1 had onset of symptoms at the age of 23 years and case 2, son of case 1 had onset of symptoms at the age of 2 years.[9] Hill ME et al. in UK population-based study found age at the onset ranging from 17 to 70 years of age.[18] Contrary to that Kuo HC et al. in Taiwanese study reported age at the onset ranging from 35 to 50 years.[19]24(60%) of patients in this study were male and 16(40%) were female, in contrast to the UK population-based study by Hill ME et al. where 61% of individuals included in the study were female.[18]Similar percentages consistent with our study were seen by Kuo HC et al. in Taiwanese study where 60% of patients were male and 40% were female patients.[19] Muller T et al. in German paper on 16

OPMD patients found 10(62%) female and 6 (38%) male patients.[20] the First symptom was ptosis present in 29(72.5%) of patients in this study, a finding consistent with Hill ME et al. where two-thirds of patients noted ptosis as the first symptom at the onset of disease.[18] Fukuhara N et al. in their study found ptosis as the initial symptom in case 1 and muscle weakness as presenting symptom in case 2.[9] Contrary to that Kuo HC et al. in their Taiwanese study reported dysphagia as the initial symptom in two-thirds of patients.[19] Muller T et al. reported all 16 patients included in their study presented with ptosis as an initial symptom.[20] Same findings were seen by Mirabella M et al. in their Italian study, whereof 16 patients included in study 15 presented with ptosis as an initial symptom.[17] Finally Blumen SC et al. in their OPMD study on Bulgarian Jewish patients reported 3 had severe ptosis at the time of presentation and 2 had h/o blepharoplasty at the time of diagnosis.[16] Ophthalmoplegia was seen in 19(47.5%) patients in this study, a finding not consistent with that seen by Muller T et al, were only 5(31%) of 16 patients had ophthalmoplegia.[20] Contrary to that Kuo et al. found 6(60%) of 10 patients in their study had ophthalmoplegia with a frequency higher than we found in our study.[19] While Hill ME et al. found half of their patients had ophthalmoplegia, a finding consistent with our study.[18] Proximal myopathy was present in 22(55%) patients in our study, a finding not consistent with findings by Kuo HC et al. where only one of ten patients had proximal weakness and Hill ME et al. where 3 of 31 patients presented with limb weakness.[18, 19] Our findings remained consistent with a study published by Muller T et al. where 9(56%) of 16 patients had proximal muscle weakness.[20] 5(31%) of 16 patients from the Mirabella M et al. study reported proximal weakness, a finding not consistent with our study.[17] Proximal upper limb weakness was seen in all 5 patients and 3 of 5 patients involving proximal lower limb in Bulgarian Jewish patients study, a finding not consistent with our study.[16]

The main limitations of this study were that due to lack of resources we diagnosed patients only on clinical grounds and positive family history. Neither we could perform a muscle biopsy to look for characteristic pathological findings nor we could perform molecular genetic analysis for mutations.

In summary OPMD in our population has an earlier onset, which may be as early as the first few years of life. The disease is more severe. Common in the male population and about half of the patients present with proximal limb weakness and ophthalmoplegia besides ptosis and dysphagia.

CONCLUSION

OPMD in our population has an earlier onset, which may be as early as the first few years of life. The disease is more severe. Common in the male population and about half of the patients present with proximal limb weakness and ophthalmoplegia besides ptosis and dysphagia.

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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